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QUERY CONTROL FORM			RTIS USE ONLY		
Application No.	091527,892	Prepared by	N.H.	Tracking Number	05887577
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a. Serial No.	f. Foreign Priority	k. Print Claim(s)	p. PTO-1449
b. Applicant(s)	g. Disclaimer	l. Print Fig.	q. PTOL-85b
c. Continuing Data	h. Microfiche Appendix	m. Searched Column	r. Abstract
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aperture, the sensor would receive no reflective signal. A reflective optical sensor could be used in each of the optical sensing apparatus described above.

Co-pending U.S. Patent Application Serial No. 09/527,893 entitled
METHOD AND APPARATUS FOR PRODUCING COMPACT MICROARRAYS

5 (Attorney Docket No. GSI-002) and filed on even date herewith is incorporated herein by reference. That application describes various pin lifter mechanisms that can be used to produce compact microarrays. Microarray spotting instruments constructed according to the present invention may use those pin lifter mechanisms in conjunction with the sensor apparatus described in the present application to facilitate production of microarrays. For
10 example, if the sensors detect that no pin is mounted within a particular pin aperture in the printhead, then the spotting instrument will know that the pin-lifter for that aperture need not be activated. Sensors could also be used to detect which, if any, pins are mounted within the group of apertures controlled by a pin-lifter. Also, in accordance with the invention, if the pin detection apparatus senses that a pin is stuck in an up (i.e., a raised) position, the spotting
15 instrument can automatically reconfigure the instrument control sequence to avoid using the stuck pins via the pin lifter. The pin lifter preferably has sufficient travel to avoid dipping the pin into the sample, preferably at least 5 mm.

Since certain changes may be made in the above apparatus without departing from the scope of the invention herein involved, it is intended that all matter contained in the
20 above description or shown in the accompanying drawing shall be interpreted in an illustrative and not a limiting sense.